# Generation Interconnections

**This analysis was completed to assess the potential reliability impact for a new generator interconnecting to the PJM system as a Capacity Resource.**

**Network Impacts - 550 MW Injection**

Network impacts for the injection of 550 MW into the four Morgantown/Hawkins Gate - Talbert/Oak Grove 230 kV circuits were evaluated for 2004 summer peak conditions. Based on the power flow analysis performed the following network impacts were identified:

## NETWORK VIOLATIONS

### Normal System

- No worst case overloads.
  Facility overloads were identified, but a greater overload for those facilities occurred for a contingency condition reported below.

### Single Contingency

- 124% overload on the C03 project - Talbert (23086) 230 kV circuit for the outage involving the parallel (23085) 230 kV circuit from the #C3 project to Talbert. The project contributes approximately 162 MW to the overloaded facility whose rating is 692 MVA. Note that according to an extrapolation of these figures, a conventional breaker and a half bus arrangement will still result in this circuit being overloaded with one of the combined cycle units off-line. The cost to reinforce this facility is **$9,000,000**. The time required to construct this reinforcement is **36** to **48 months**.

- 124% overload on the #C3 project - Talbert (23085) 230 kV circuit for the outage involving the parallel (23086) 230 kV circuit from the #C3 project to Talbert. The project contributes approximately 162 MW to the overloaded facility whose rating is 692 MVA. Note that according to an extrapolation of these figures, a conventional breaker and a half bus arrangement will still result in this circuit being overloaded with one of the combined cycle units off-line. The cost to reinforce this facility is **$9,000,000**. The time required to construct this reinforcement is **36** to **48 months**.

### Double Circuit Tower Circuit Outages (MAAC Criteria IIC)

- 117% overload on the Oak Grove - Burtonsville (23045) 230 kV circuit for the double circuit tower line outage involving the Chalk Point - Bowie (23063/54) 230 kV circuit and the Oak Grove - Burtonsville (23042) 230 kV circuit. The project contributes approximately 108 MW to

the overloaded facility whose rating is 730 MVA. The cost to reinforce this facility is **$17,000,000.** The time required to construct this reinforcement is **36** to **48 months**.

- 113% overload on the Oak Grove - Burtonsville (23042) 230 kV circuit for the double circuit tower line outage involving the Chalk Point - Bowie (23065) 230 kV circuit and the Oak Grove - Burtonsville (23045) 230 kV circuit. The project contributes approximately 108 MW to the overloaded facility whose rating is 730 MVA. The cost to reinforce this facility is $17,000,000. The time required to construct this reinforcement is 36 to 48 months.

In addition to the network impacts shown above, a short circuit screening was performed. The results are primarily the same for each alternative.

## SHORT CIRCUIT ANALYSIS

All of the eight Oak Grove 230 kV circuit breakers on the Oak Grove - Ritchie 230 kV circuits are over-dutied with fault currents between 51 kA and 53 kA versus a 50 kA interrupting rating. The cost to replace these circuit breakers with new 63 kA circuit breakers is $4,800,000. The time required to replace these breakers is 18 months.

## STABILITY ANALYSIS

Not performed. Stability analysis will be performed during the Impact Study for this project.